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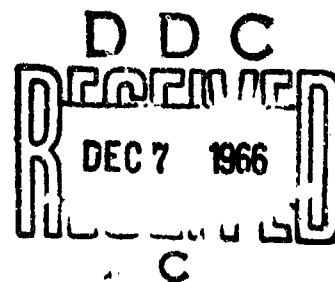
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TECHNICAL MANUSCRIPT 317

USE OF THE MICROSCOPE IN A CLASS III  
SAFETY CABINET SYSTEM

James T. Sinski

OCTOBER 1966



DEPARTMENT OF THE ARMY  
Fort Detrick  
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TECHNICAL MANUSCRIPT 317

USE OF THE MICROSCOPE IN A CLASS III SAFETY CABINET SYSTEM

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Special Operations Division  
COMMODITY DEVELOPMENT AND ENGINEERING LABORATORY

Project 1C522301A059

October 1966

## USE OF THE MICROSCOPE IN A CLASS III SAFETY CABINET SYSTEM

### ABSTRACT

For facile use of the microscope in the Class III gas-tight safety cabinet system, the combination of tubular extensions from the plastic window and a microscope with a movable stage for focusing is described.

This report describes a modification and the equipment necessary for the facile use of the microscope in the Class III or "gastight" safety cabinet system.\* Most microscopes bring the image into focus by movement of the body tube. With a stationary viewing point, such as a plastic pane of the window of the Class III system, the ocular moves toward or away from this viewing point as the microscope is focused. For efficient use, the entire microscope must be positioned many times with a lab-jack to keep the ocular adjacent to the viewing point.

Microscopes are now available with fixed oculars. These models are designed so that the stage is the movable portion of the instrument used for focusing.

To allow the observer and operator to look through the eye pieces of the microscope with ease when the microscope is within a gastight system, extensions have been made from the plastic window of the cabinet system. For the use of a binocular microscope, two such extensions have been made with a distance of 2.5 inches from center to center of the viewing ports. The distance between these extensions has been adequate for the differing interpupillary distances of those persons who have used this particular system. The aluminum extensions have been inserted into the window so that they are parallel to the length of the oculars of the body tube. The arrangement makes the ocular lens of the microscope parallel to the cast optic plastic viewing port of the extension (Fig. 1). This extension viewing system is inserted in the plastic window approximately 5 inches from the base of the window. The assembly is subjected to the standard Class III safety cabinet gas tightness leak test.

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\* Wedum, A.G. 1964. Laboratory safety in research with infectious aerosols. Public Health Rep. 79:619-633.

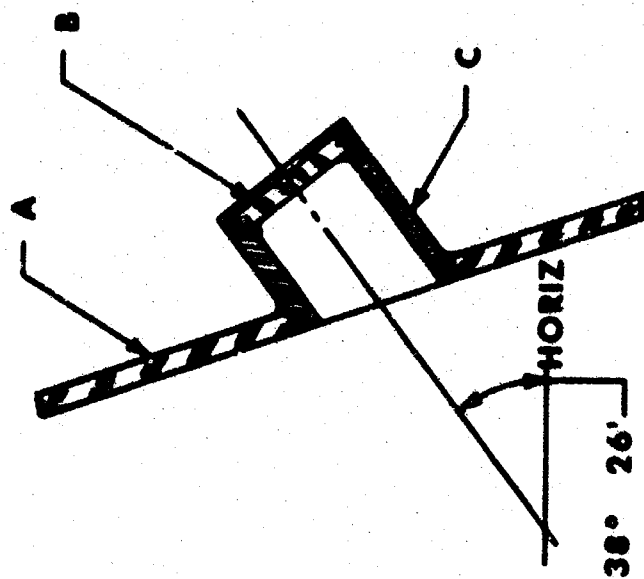
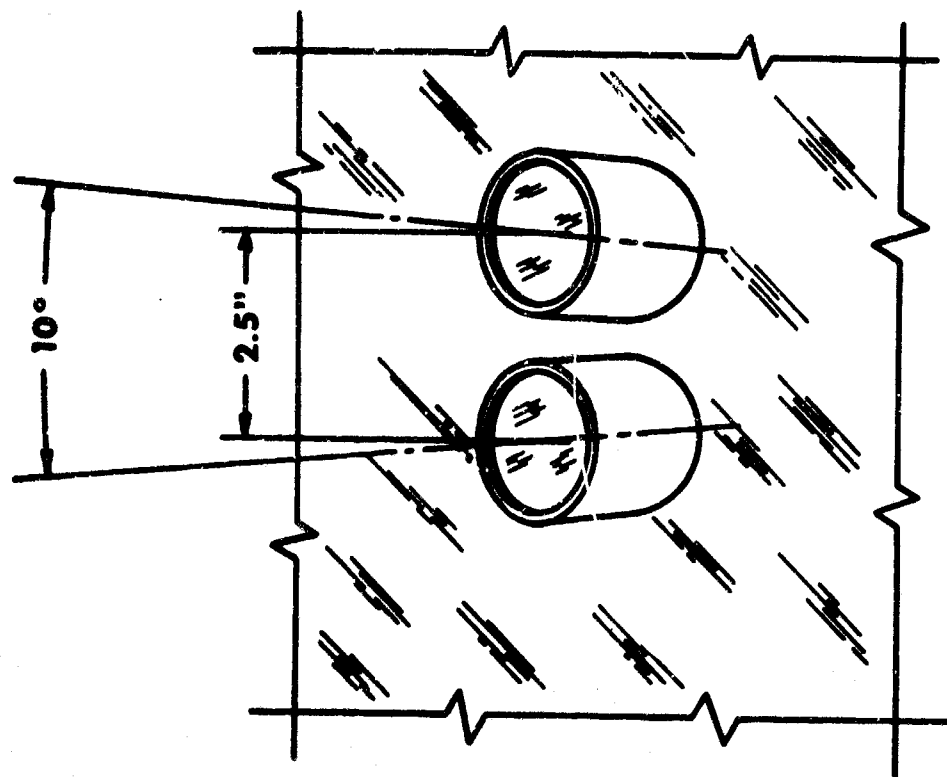


Figure 1. Tubular Extension Assembly for Use of Binocular Microscope in Gastight Cabinet System.  
 (A) Safety cabinet viewing window; (B) cast optic plastic  $\frac{1}{4}$  inch thick; (C) aluminum tubing (2-inch outside diameter x  $\frac{1}{4}$ -inch inside diameter x 2 inches long). Items A and B are fastened to item C with epoxy cement.

The microscope is placed in position with the oculars inserted into the aluminum extensions from the window and raised with a lab-jack. Once the microscope is in position, it need not be moved. Since the microscope is focused by a movable stage, the oculars do not move from the original position (Fig. 2).



Figure 2. Microscope with Oculars in Tubular Extensions from Plastic Pane of Safety Cabinet System.

At present, wide-field oculars are used in this microscope.

The tubular extension for use with the monocular microscope is inserted into the plastic pane at a 40-degree angle from the horizontal and is perpendicular to the window rather than canted as shown in Figure 1.

Thus, this system of tubular extensions from the viewing window of the Class III system plus the use of a microscope with a movable stage for focusing provides a method for efficient use of a binocular or monocular microscope with low, high, and oil-immersion objectives.

Not all the problems have been solved with this system. One of these problems is the inability to get good clear photographs through the microscope.



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